

Air Quality in South Carolina



"The Mission of the Bureau of Air Quality is to conserve and enhance air resources in a manner that promotes quality of life."

Myra Reece, Chief

Bureau of Air Quality

Why is Air Quality Important?

- **A person can go 30 days without food and 3 days without water, but only 3 minutes without air.**
- **Poor air quality threatens the health of human beings, trees, lakes, crops, and animals, as well as the ozone layer and buildings. Air pollution can also cause haze, which reduces visibility.**

Why is Air Quality Important?

- Children are at greater risk because they are more active outdoors and their lungs are still developing.**
- The elderly are also more sensitive to air pollution because they often have heart or lung disease.**

Nonattainment Status for SC

Henry Phillips, Manager

**Air Assessment and Planning
Section**

National Ambient Air Quality Standards (NAAQS)

- Ozone (O_3)
- Particulate Matter (PM)
- Lead
- Nitrogen Dioxide
- Sulfur Dioxide
- Carbon Monoxide



“New” Air Quality Standards

- In July 1997, EPA revised the national standards for 8-hour ozone and particulate matter
- After much litigation...
- EPA designated areas not meeting the 8-hour ozone standard on April 15, 2004.
- EPA will designate areas not meeting the PM 2.5 standard sometime in December 2004.

What Could “Nonattainment” Cost South Carolina?

- Public Health and quality of life.
- Tourism, Public Image
- Economic Development
- Others?

Ozone

- A violation of the 8-hour ozone standard is 0.085ppm and above (based on rounding of a 3-year average of the fourth-highest values).
- Three monitors exceeding the standard in the following counties: Anderson, Spartanburg, and Richland.
- EPA's presumptive boundaries are full county and Metropolitan Statistical Areas (MSAs).

Prescriptive Requirements for Nonattainment Areas

- ❑ Transportation Conformity
 - Consultation procedures.
 - Mobile emissions budget.
- ❑ Nonattainment New Source Review
 - Permitting process for new industry locating in NA area and existing industry in NA areas wishing to increase emissions.
 - NO_x and VOC emissions.
 - Emissions Offsets.
- ❑ Others? EPA to decide.

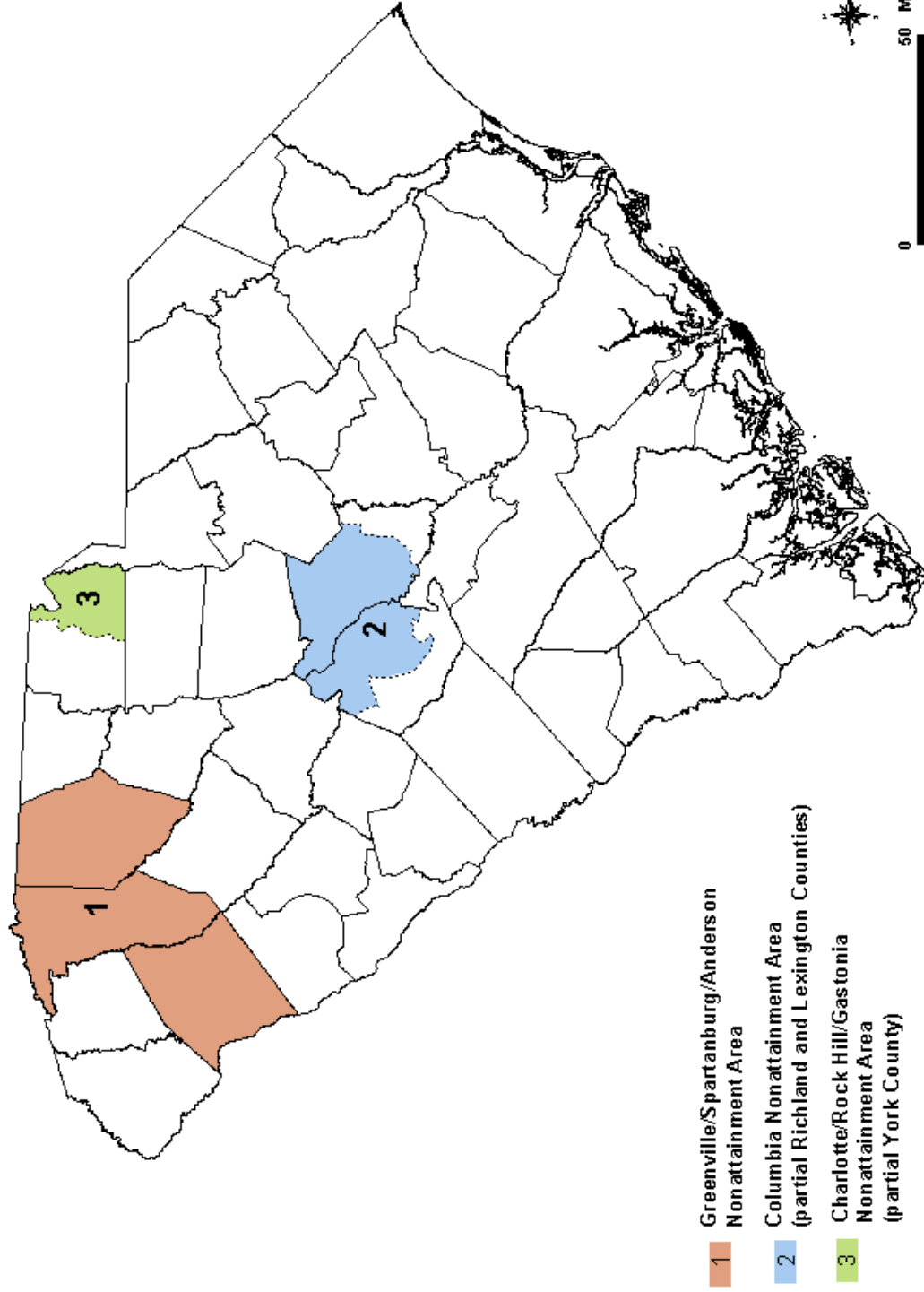
Ozone Nonattainment Areas

- All of Anderson, Greenville, and Spartanburg Counties designated together. Area allowed to continue participation in the ozone early action process.
- Urbanized portions of Lexington and Richland Counties designated together. Area allowed to continue participation in the ozone early action process.

Ozone Nonattainment Areas cont...

- Urbanized portion of York County (eastern part) designated along with Charlotte, NC area. Area is not eligible to participate in the ozone early action process.
- Designations became effective on June 15, 2004.

South Carolina Designated Nonattainment Areas for the 8-Hour Ozone Standard



York County Nonattainment Area

- Area classified as “Moderate”
- SIP due June 15, 2007
- Attainment date June 15, 2010
- Areas re-designation status tied to highest ozone design value for the Charlotte area (currently 0.101 ppm)
- More details to come later this year

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Ozone Early Action Compact (EAC) Update

**Melinda Mathias,
Air Assessment & Planning Section**

Ozone Early Action Compacts

- ❑ 45 counties are participating
- ❑ Areas were designated but prescriptive requirements have been deferred as long as obligations are met
- ❑ Local plans that make sense for local areas
- ❑ Statewide initiatives
 - Regulations on NO_x and open burning
 - Other initiatives (CAIGE, Smart Highways)

EPA Issues Rolling Deferrals

❑ First Deferral

- Proposed - December 2003
- EPA took action – April 2004
- Effective until September 2005

❑ Second Deferral

- *September 2005 – December 2006*

❑ Third Deferral

- *December 2006 – April 2008*

EAC Milestones

- ✓ December 2002 – EACs submitted to EPA
- ✓ June 2003 – Progress Report and List of emission reduction strategies under consideration
- ✓ December 2003 – Progress Report
- ✓ March 2004 – Local Plans
- ✓ June 2004 – Progress Report

EAC Milestones

- December 2004 –Early Action SIP
 - October 2004- State Register
 - November 2004- Public Meeting
- December 2004 – Local Progress Reports
- April 2005 – Implement strategies
- June 2005 – December 2007 – Local Progress Reports (every 6 months)
- December 2007 – Attain Standard
- April 2008 – EPA designation - Attainment

Additional Information:

Visit EPA's Early Action Compact website

<http://www.epa.gov/air/eac/>

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EAC Regulatory Update

Heather Preston, Manager

**Air Regulation & Development
Section**

Early Action Compact Regulations

- Statewide regulations to support the EAC process
- Regulations were developed through meetings with stakeholder groups
- EAC regulations were submitted to the legislature for their approval
- Final EAC regulations published in the State Register on June 25, 2004, and became effective upon publication

EAC Regulations

- ❑ Three regulations (one newly-promulgated & two revised)
 - ❖ New regulation
 - 61-62.5, Standard 5.2, *Control of Oxides of Nitrogen (NO_x)*
 - ❖ Revised regulations
 - 61-62.2, *Prohibition of Open Burning*
 - 61-62.5, Standard 5.1, *Lowest Achievable Emission Rate (LAER) Applicable to Volatile Organic Compounds*

Control of NO_x Regulation

- Newly-promulgated regulation
- Applies to any stationary source that emits NO_x
- Exemptions for sources that have undergone BACT
- New sources must install controls specified in the regulation – these controls are based on BACT requirements

Control of NOx Reg. Cont'd

- Designed to capture smaller sources – those that would fall below PSD thresholds
- Existing sources only become subject to the regulation when they replace their burners
- When existing sources replace their burners, they are required to replace them with low-NOx burners or equivalent tech. capable of achieving 30% reduction from uncontrolled

Prohibition of Open Burning

- Minor revisions were made to the existing regulation
- Exemption for burning of household waste where other disposal options didn't exist was stricken
- Exemption for construction waste was revised to allow only residential construction waste to be burned

VOC LAER Regulation

- Existing regulation R.61-62.5, Standard 5.1 (VOC LAER) revised and renamed
- New regulation called Best Available Control Technology (BACT)/Lowest Achievable Emission Rate (LAER) Applicable to Volatile Organic Compound

VOC LAER Regulation

- New construction will be required to apply BACT rather than LAER when net VOC emissions increase exceeds 100 tons per year
- Sources permitted before June 25, 2004, will still be subject to VOC LAER requirements

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South Carolina 8-hour Ozone Modeling Results

Kevin J. Clark, P.E.

Manager, Air Modeling Section

Introduction

- Ozone modeling 101
- 1998 episode results
- Modeled attainment test
- Future year modeling results
- Model sensitivity runs

Why Model?

□ Predictive tool

- Allows proactive approach
- Develop multiple control scenarios
- Determine optimal selection of controls

Episode Selection

- Has days that exceed 84 ppb, 8-hour basis
- Ozone values close to design value
- May 18-22, 1998 (plus May 16, 17, 23)
- Upstate, Midlands, Aiken/Augusta, and York area exceedances

Model System Inputs

- Meteorology
- Biogenics
- Point sources
- Area sources
- Mobile sources
- Ozone model (UAMV)
- Ozone monitoring data

Model Results

- Model performance within error limits specified by EPA
- Model performance comparable to GA, NC ozone modeling

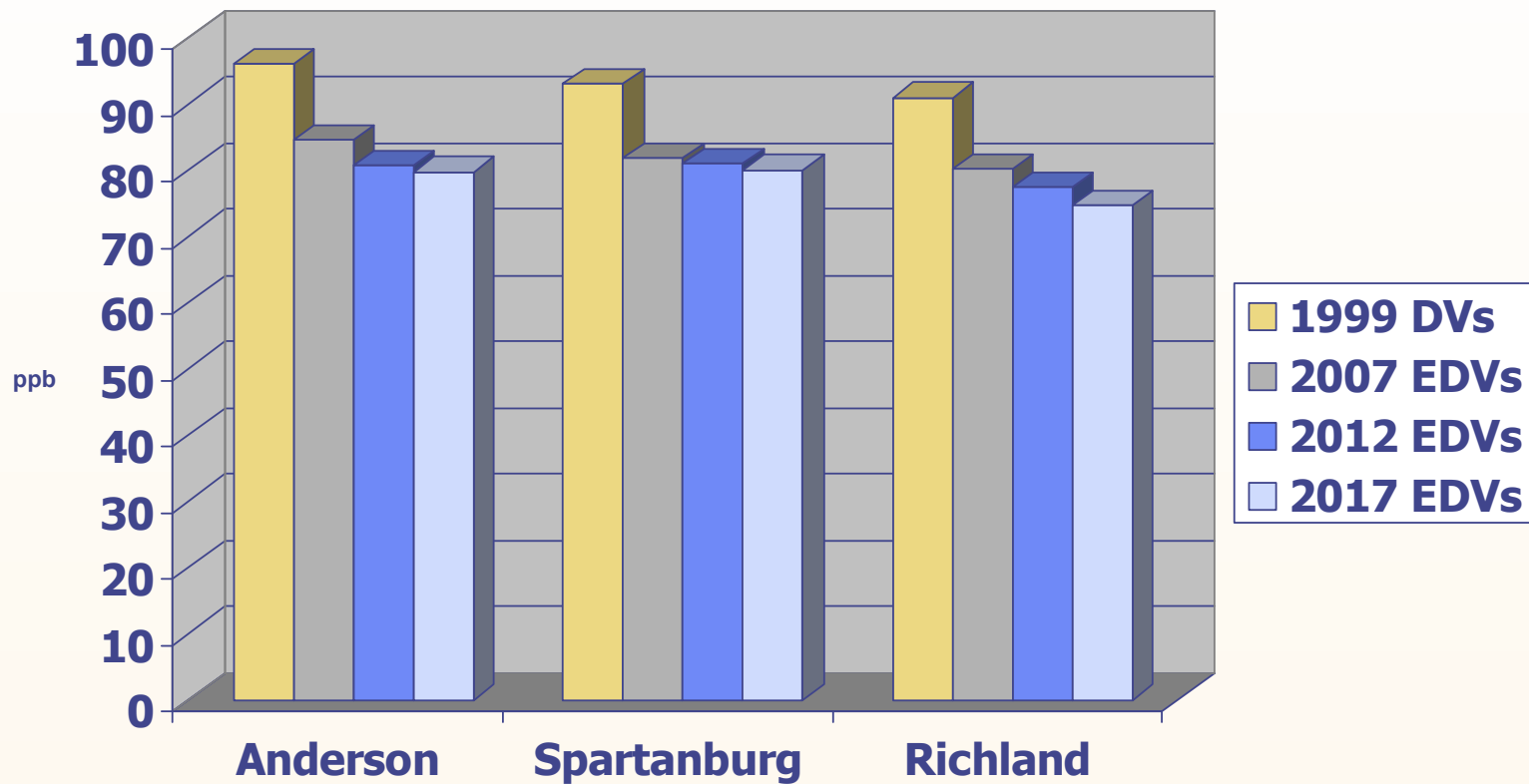
Future Year Modeling

- ❑ Uses 1998 “base case” modeling
- ❑ “Grows” emissions to future year
- ❑ Includes current mandated controls, e.g.
 - NOx SIP call
 - Tier II, low sulfur fuels
- ❑ 2007, 2012, 2017 runs

Modeled Attainment Test

- Model used to determine relative change in ozone
- Determine ratio of future ozone levels to current levels (relative reduction factor)
- Attainment determined by multiplying RRF by monitored design value

Non-Attainment Area Results



Ozone Results

- All areas attain standard in 2007
- Attainment based on federal regulations to be in place by 2007, 2012
- Anderson “on the bubble” – 84.48 ppb
- All areas show lower ozone levels in 2012, 2017 – except Cape Romain (2017)

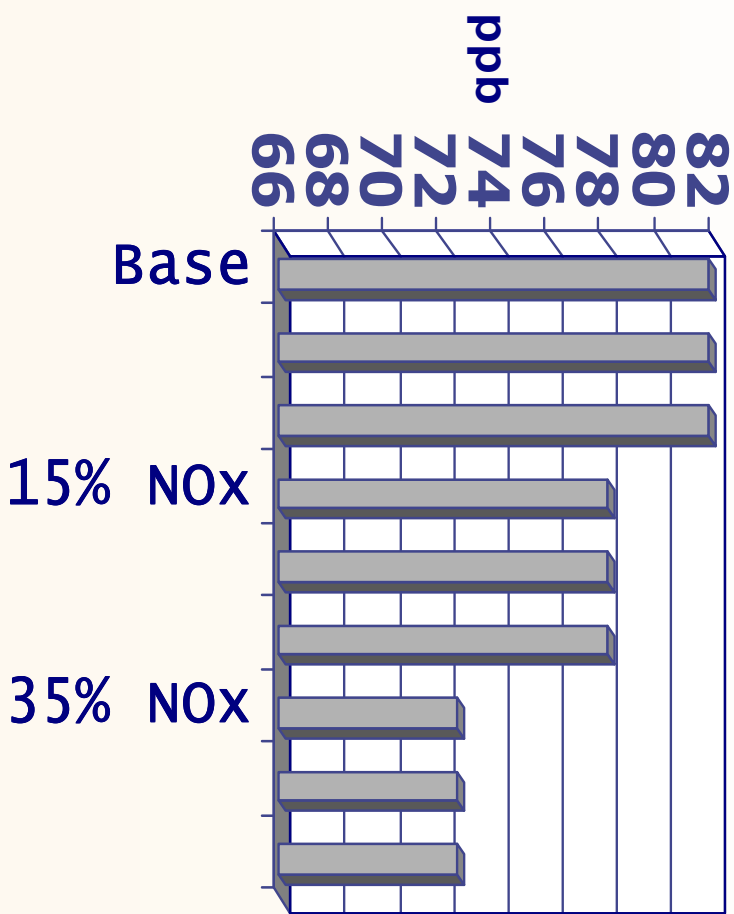
Other EAC Areas

County	2003 Design Value (ppb)
Cherokee	84
Pickens	84
Oconee	83
Chester	84
Darlington	82

Sensitivity Runs

- Based on 2007 future year model run
- Changes in man made NO_x, VOC
- 8 runs involving combinations of 15%, 35% reductions
- Determine area sensitivity to NO_x, VOC reductions including possible interaction effects

Spartanburg Monitor



■ 2007
Estimated
DVs

Sensitivity Results

- NO_x reductions lead to lower ozone levels
- VOC reductions have little impact on ozone levels
- Little interaction in combined NO_x and VOC reduction runs

Conclusions

- All non-attainment areas should be back in attainment by 2007 and remain in attainment in 2012, 2017
- Anderson monitor still close to standard in 2007
- Additional NO_x reductions may have more benefit than VOC reductions

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Truck Stop Electrification

**Chad Wilbanks,
Air Assessment & Planning Section**

The Trucking Industry:

- Estimated 4 million large diesel trucks on roadways
- About 1/3 of those have cabs with sleepers
- Truckers ...
 - Average as much as 500 miles per day
 - Work the majority of the days each month

Why Long-Haul Trucks Idle

- To meet federal mandates for rest breaks
- To operate heat and AC
- To provide electrical power for small appliances (TVs, microwaves, etc.)
- To protect engine in cold weather
- **Because they always have**

Impacts of Long-Duration Idling

- **Wasted fuel**
 - 0.8 – 1.2 gallons / hour
- **Source of air pollution**
 - Nitrous oxides, particulate matter, carbon dioxide, and air toxics
 - Impacts to health and environment
- **Noise pollution**
- **Wear and tear on truck engines**
- **Interrupts the driver's rest**

South Carolina Specifics

- An estimated 50+ truck stops
- FHWA estimates > 9300 parking spaces
- If 50% of parking spaces had idling trucks, EPA's estimated annual impacts...
 - 11 million gallons fuel
 - 2,000 tons of NO_x
 - 55 tons of PM

Solutions to Idling

- Voluntary actions
 - anti-idling policies
 - “break the habit”
- Anti-idling regulations (enforcement)
- Idle reduction technologies
 - Truck stop electrification

➤ *Key Component: Education & Outreach*

Truck Stop Electrification

- Similar to power hookups provided at marinas or RV parks
- Eliminates need for extended idling
- HVAC powered by electrical power, rather than by truck engine
- Provides “comforts of home”
 - Electrical power for small appliances
 - Access to telephone lines and television

Truck Stop Electrification in South Carolina

- SC DHEC and State Energy Office partnered with state agencies in North Carolina and Georgia and IdleAire Technologies Corporation to win \$1.5 million grant
 - Will install electrification technology in 50 parking spaces at a truck stop in each state along I-85
- Anderson Auto Travel Plaza @ Exit 27
- Operational in Fall, 2004

IdleAire's Truck Stop Electrification



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Examples From Local Plans

**Devon Beaty,
Air Assessment & Planning Section**

Greenville County Government Online...



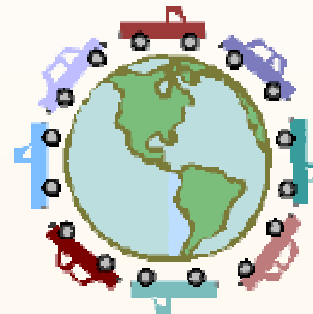
Air Quality

During its June 3, 2003 meeting, Greenville County Council authorized the submission of the Early Action Compact (EAC) Milestone -- June 2003 Progress Report as presented by the Upstate South Carolina Air Quality Steering Committee to the...

<http://www.greenvillecounty.org/>

Chester County Air Tips Online...

- ◆ To plant a tree.
- ◆ To walk/bike whenever I can.
- ◆ To stay educated on how to improve air quality.
- ◆ To bring my own reusable shopping bag when grocery shopping.
- ◆ To buy recycled paper packaging.
- ◆ To buy in bulk.
- ◆ To avoid throwaway products.
- ◆ To avoid excess packaging.
- ◆ To recycle.
- ◆ To keep my tires properly inflated.
- ◆ To keep my vehicle well-maintained.
- ◆ To avoid idling more than 2 minutes.
- ◆ Not to "top of" the gas tank.
- ◆ To use over-drive, if I have it.
- ◆ Not to burn my household garbage.
- ◆ To use energy efficient lighting in my home.



www.chestercountysc.com/cair.html

NEWBERRY COUNTY ONLINE

How Ozone Pollution Works

How it Works

What is it

Effects of Ozone

What I can Do



Ozone is a major component of smog.

In this article, we will examine what ozone is, how it is produced, what health hazards it poses and what you can do to reduce ozone pollution.

www.newberrycounty.net/ozone/index2.htm

www.florenceco.org



Welcome to Bicycling in Florence County!
Thank you for visiting our site! Take a look
around, give us your comments, and then
get out there and start biking!



Richland County Online

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Clean Air Kid
is the mascot
for DHEC's
Bureau of Air
Quality



[Background](#)

[Fact Sheets](#)

[Transportation Alternative for Safer Ozone](#)

[Early Action Compact](#) - ***Adobe PDF**

[Early Action Plan for the 8-Hour Ozone](#)

[Standard - December 2003 Milestone](#)

[Early Action Compact Milestone - June 2003](#)

[Stakeholders Letter \(Mtg May 21, 2003\) -](#)

[March](#)

[2004 Final Local Early Action Plan](#) -

[Links](#)

[June 2004 Progress Report](#)

[Richland County's August Milestone](#) -

Abbeville....

Pressing the Issue of Air Quality

Pollution solution

Abbeville County working to tackle low-level ozone concerns

By Henry E. Green

Abbeville County is taking steps, in accordance with state directives, to control ozone, a substance which can contribute to air pollution.

Ozone can be beneficial or harmful depending on where it is found, noted Abbeville County Planning Director Patricia Gordon.

Stratospheric ozone is found nine to 15 miles above the earth, where it shields humans and plants from ultraviolet rays from the sun.

However, high accumulations of ozone gas in the lower atmosphere at ground level pollute the air, and can be harmful to people, animals, and crops.

Elevated levels of ozone may cause respiratory diseases. Short term exposure may result in shortness of breath, coughing, chest tightness or irritation of nose and throat.

Ozone pollution, a component of smog, is mainly a daytime problem during summer months because sunlight plays a primary role in its formation.

Nitrogen oxides and hydrocarbons are known as "precursors" of ozone-compounds which react in the presence of sunlight to produce ozone.

The sources of these precursors include cars, trucks, power plants and factories, or wherever natural gas, gasoline, diesel fuel, kerosene and oil are combusted.

Accordingly, the state has is-

sued directives in connection with the amount of ozone in the air.

Each county is being asked to work to reduce the amount of "lower level" ozone in the air.

Abbeville County has, to this end, formed a group of stakeholders--those who are interested in developing methods of reducing the low level ozone in Abbeville County", Gordon said Wednesday.

Gordon helped form the group, which she wanted to include a cross section of the community.

The group has met several times.

Preliminary plans are to send public service announcements to newspapers, radio and television stations, in an effort to raise public awareness.

There's also a plan to solicit the cooperation of state and federal agencies not to issue burning permits on high ozone days.

The group plans to encourage county, municipalities, and citizens not to mow their grass during high ozone days.

Counties and municipalities would be asked to explore the option of purchasing more fuel efficient and low emission vehicles when replacements are needed and when economically feasible.

During the hottest part of the day, when many people come out to mow their lawns, the exhaust from the lawn mowers can interact with elements in the air to increase the ozone level.

There's an ozone season, corresponding with the hottest months of the year, when ozone levels tend to be at their peak.

Some days are worse than others. Heat increases the level of ground-level ozone, she said--clear, hot, dry weather "increases the chances of unhealthy air quality."

Wednesday, for example, was a day of temperatures hovering around the 90 degree mark.

It was also dry, making it "an unhealthy day as far as ozone goes."

Gordon went on to say that some people are more susceptible than others. "Due to respiratory problems," people with asthma or bronchitis or the like do not need to be outside on high ozone level days, because it will exacerbate their conditions.

Gordon is encouraging the public to get involved in the process to tame the ozone.

Abbeville County is not the only county participating in the ozone plan. She said that to her knowledge all the counties in the state except one are participating in the "ozone early action process."

The stakeholders group must comply with a number of state coordinated deadlines on submission of information on how the county is progressing.

For more information, one may call Gordon at 459-2400, extension 57.

Ozone forecasts available on hotline

By Thom Berry

Daily forecasts for ground-level ozone in four regions of the state are now available through a toll-free hotline at 1-866-238-4973, the S.C. Department of Health and Environmental Control announced today.

"This is another way to provide residents with air quality forecasts so they can take actions to reduce contributions to poor air quality and protect their health," said Rence G. Shealy, director of DHEC's Division of Air Planning and Outreach. "The hotline will help get this important information to people with no Internet access and who live in areas where television stations do not include ozone forecasts in their weather reports."

Shealy said the hotline number, 1-866-238-4973, will be updated by 4 p.m. each day, including weekends and holidays with the air quality forecast for the following day. The forecasts will

be available during ozone season, which runs from May 1st through September 30th.

"With the new federal standards for ground-level ozone in place, it's more important for each of us to do our part to reduce ground-level ozone," Shealy said. "Anderson, Greenville and Spartanburg counties, along with portions of York, Richland and Lexington counties do not meet the federal standard under the new rules. We can all help reduce the formation of ground-level ozone by driving less, carpooling or using public transportation where available. By doing our part to reduce ground-level ozone, South Carolina will have cleaner air sooner."

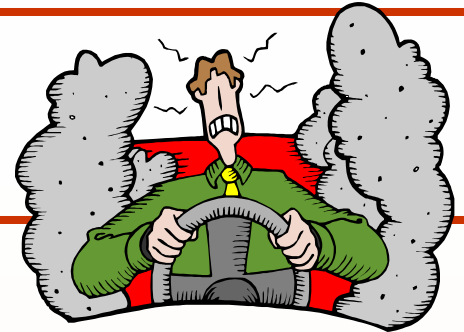
Shealy said ground-level ozone is formed when pollutants from cars, trucks, industries and other sources react to sunlight and higher temperatures. This type of ozone can be an irritant to the respiratory system of children, adults who work and exercise outdoors and for

people with respiratory diseases like asthma. Ozone forecasts allow high-risk people to avoid outdoor activities when air quality will be poor.

"DHEC meteorologists produce the daily forecasts, using four color categories: green for good; yellow for moderate conditions; orange for unhealthy for sensitive groups; and red for unhealthy for everyone," she said.

Forecasts for the Upstate, Central Midlands, Central Savannah River and Pee Dee regions will be available on the hotline in addition to DHEC's Web site at www.scdhec.gov/baq/ozone. People in the Catawba region should monitor the Charlotte report at <http://daq.state.nc.us/airware/ozone/> or call 1-866-RU4NCAIR. Advisories and tips also are displayed on S.C. Department of Transportation highway message boards when higher concentrations of ground-level ozone are predicted.

No Idling in Georgetown...

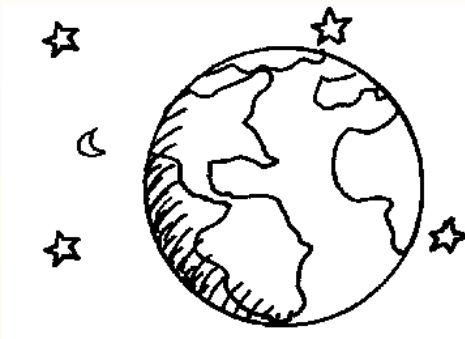


New policy reflected in policy and procedure Manual for county employees.

**Effects on Air Quality
and Responsibility of Employees...**

...All county employees who are operating a piece of equipment or vehicle are required to shut down the equipment when it is not in operation

Other Projects to look out for:



- Purchasing policy changes**
- Lawn and maintainance
schedule changes**
- Land use planning**
- Ozone Forecast**
- Commuter Programs**
- Gas Can Exchange events**

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Take A Break From The Exhaust (TABFTE)

**Jack Porter,
Air Education and Outreach Section**

“Take A Break From The Exhaust”

- A web-based program available to State & local governments, industry, and the public.
- Can track and calculate Vehicle Miles Reduced (VMR's) and determine emissions reductions.
- FREE! No additional equipment needed.

“Take A Break From The Exhaust”

- Reduce emissions from mobile sources
- Increase awareness of the impact of mobile sources on air quality
- Encourages employees and the public to take voluntary actions to help improve air quality



Take A Break From The Exhaust“Actions”

- **Staying in for lunch**
- **Carpooling**
- **Flex-scheduling**
- **Tele-commuting**
- **AWS adjustment**
- **Biked to/from work**
- **Walked to/from work**
- **Mass transit to/from work**
- **Rideshare/mass transit to/from lunch**



<div> July 2004 Go << July 2004 >> Today </div>						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1 Rideshare Lunch : 1 <hr/> Point Total : 1 Miles Saved : 5	2 AWS : 2 <hr/> Point Total : 2 Miles Saved : 30	3
4	5	6 Unable : 0 <hr/> Point Total : 0 Miles Saved : 0	7 Unable : 0 <hr/> Point Total : 0 Miles Saved : 0	8 Rideshare Work : 3 <hr/> Point Total : 3 Miles Saved : 60	9 Bike/Walk-Lunch : 2 AWS : 2 <hr/> Point Total : 4 Miles Saved : 35	10
11	12 Rideshare Lunch : 1 <hr/> Point Total : 1 Miles Saved : 5	13 Rideshare Lunch : 1 <hr/> Point Total : 1 Miles Saved : 5	14 Rideshare Lunch : 1 <hr/> Point Total : 1 Miles Saved : 5	15 Rideshare Lunch : 1 <hr/> Point Total : 1 Miles Saved : 5	16 AWS : 2 <hr/> Point Total : 2 Miles Saved : 30	17
18	19 Bike/Walk-Lunch : 2 <hr/> Point Total : 2 Miles Saved : 5	20 Bike/Walk-Lunch : 2 <hr/> Point Total : 2 Miles Saved : 5	21 Rideshare Lunch : 1 <hr/> Point Total : 1 Miles Saved : 5	22 Rideshare Lunch : 1 <hr/> Point Total : 1 Miles Saved : 10	23 Flex-Scheduling : 2 Rideshare Lunch : 2 <hr/> Point Total : 4 Miles Saved : 10	24
25	26 Bike/Walk-Lunch : 2 <hr/> Point Total : 2 Miles Saved : 5	27 Bike/Walk-Lunch : 2 <hr/> Point Total : 2 Miles Saved : 5	28 Today, the forecasted AQI for Ozone = 49 "Good"	29 Tomorrow, the forecasted AQI for Ozone = 43 "Good"	30	31

The TABFTE calendar enables users to see what the ozone forecast is for previous days, the current day, and after 3:00pm it will provide the forecast for the next day.

2002-2003
Take A Break From The Exhaust
Bureau of Air Quality

“Tracking Behavioral Changes”

<u>Option</u>	<u>Percent Change</u>
Carpooling	+34%
Biked to/from work	+10%
Walked to/from work	+11%

Resources needed to implement "Take A Break From The Exhaust"

- Personnel to establish and implement the program
- Promotional items if desired
- Partnerships with business, mass transit, etc.
- Internet access
- Buy-in from employees

SCDHEC BAQ can provide....

- Guidance with program specifics
- Examples of surveys, promotional items, and certificates
- Overview of the computer program
- Assistance with implementation

Want to participate in TABFTE?

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Gas Can Exchange Project

Ami Babic,

Air Education and Outreach Section

GOAL

- Develop and conduct a project that reduces VOC emissions and can easily be replicated by other entities.

Three events within the past year:

- June 2003: Greenville
- June 2004: Columbia
- June 2004: Greenwood

Partners

- DHEC's Bureau of Air Quality and Recycling Office
- County Early Action Compact Contacts
- County Solid Waste Divisions
- Corporate Sponsors
- Community Stakeholders

Greenville

- Collected 253 plastic or metal cans
- Gave away approximately 300 new spill proof cans
- VOC's saved: 1096.3755 lbs.

Columbia

- Collected 94 plastic; 70 metal cans
- Gave away approximately 200 new spill proof cans
- VOC's saved: 710.894 lbs

Greenwood

- Collected 57 plastic; 20 metal cans
- Gave away 100 new spill proof cans
- VOC's saved: 333.680 lbs.



Gas cans collected in Greenwood

Future Events

- Columbia NE – possibly in early October
 - Rock Hill – mid October in conjunction with household hazardous waste collection
 - Abbeville
 - Pickens
-
- HOW ABOUT YOUR COMMUNITY ?

**Want to participate in a Gas Can
Exchange Event?**

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Greenscape Project

Ami Babic,

Air Education and Outreach Section

GREENSCAPE PROJECT



Demonstration Tree Planting project that helps reduce air pollution, helps with storm water runoff, and educates the need for trees in urban landscapes.

Why plant trees?

- Reducing grass area results in less lawn mowing
= reduction in NO_x and VOC
- Trees provide shade.
- Trees have a positive impact on groundwater runoff.

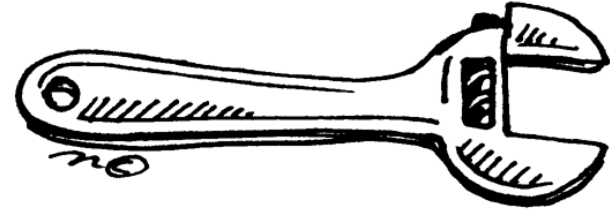
- DHEC partnered with the Budget and Control Board's Horticulture services and applied for a grant.
- June 2004 DHEC was notified that we were awarded the grant
- The grant period is July 1, 2004 – June 30, 2005

Tree Planting



- September – Grass will be chemically treated for removal.
- November – preparation of the land will occur and trees will be planted by November 15th.

GROW Workshops



The workshops will be held: September 9, 2004; November 19, 2004; and March 17, 2005

Everyone is invited to attend one of the 3 workshops.

The GROW curriculum will include 7 sections (soil, compost, water, pest, plants, lawn care, and trees)

Arbor Day Celebration



- We will host an arbor day celebration at the demonstration site the first week in December.
- A tree planting demonstration will occur
- Participants will learn proper way to plant a tree, the need for trees, and everyone will be given a sapling of their own to take home and plant.

Workshop Seminar

- Dave Nowack, PhD, Project Leader, USDA Forest Service Northeastern Research Station will be asked to come and hold a seminar about trees and how they relate to our environment (Air Quality and Water Quality).
- Everyone will be invited. An invitation and registration will be emailed out prior to the event

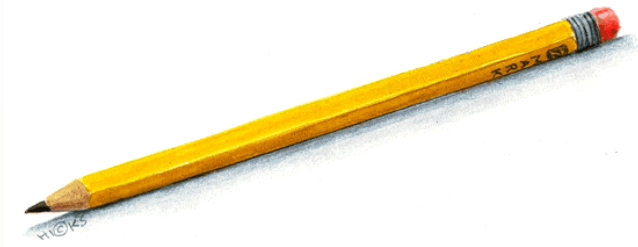
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Air Outreach in Schools



Amy Curran,

Air Education and Outreach Section

A c t i o n

for a

Cleaner Tomorrow

**A South Carolina Environmental
Curriculum Supplement**

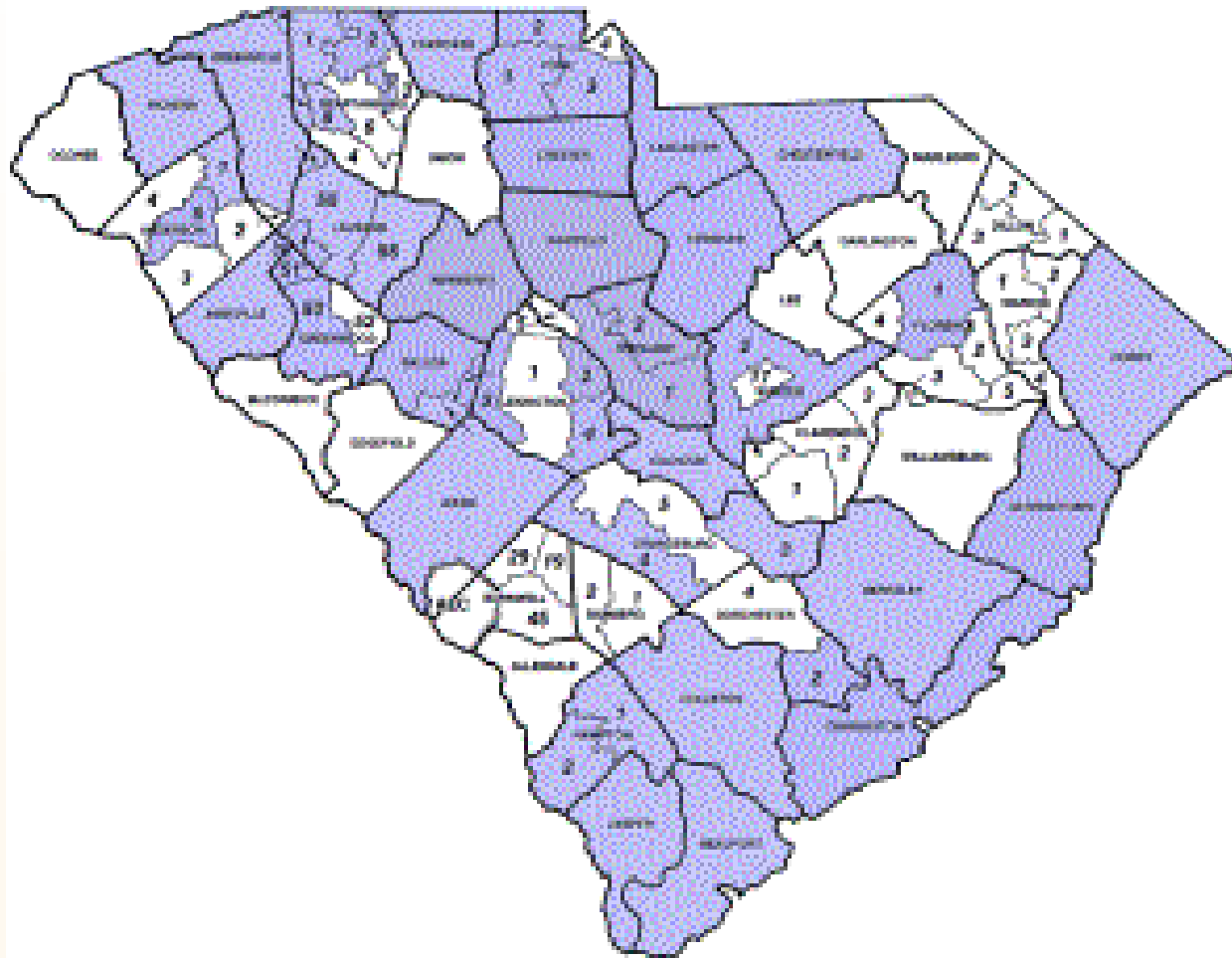


What is Action for a Cleaner Tomorrow?

An award winning, activity- based, interdisciplinary curriculum supplement that:

- Is correlated to meet the South Carolina curriculum standards for Math, Social Studies, Language Arts, and Science
- Serves as a starting point to incorporate basic environmental education in the classroom
- Provides hands on activities that helps students get the facts, form opinions, make decisions...think for themselves, and provide solutions

Stats for teachers that are trained on action



Additional information:

- **To obtain a copy of an Action for a Cleaner Tomorrow CD you must attend an “Action” workshop**
- **The lessons are designed for grades kindergarten through 12**
- **The curriculum supplement CD and workshops are provided at no cost to the schools or teachers**
- **The instructors will travel to an area of high interest to conduct a workshop**



og forming emissions than a 1988 passenger car driven for 50,000 miles

Welcome to the Competition



North -Vs- South

A Competition for Cleaner Air

- A friendly competition that teaches about how we may all contribute to cleaner air
- An interactive, web based program for driving school aged students
- Provides information on ground level ozone

How does it work?

Administrator – creates competition

Referee-creates teams, and coaches,
defines database constants

Coach- creates players, username and
password, can modify teams

Player- completes emission
questionnaire, enters daily behavior

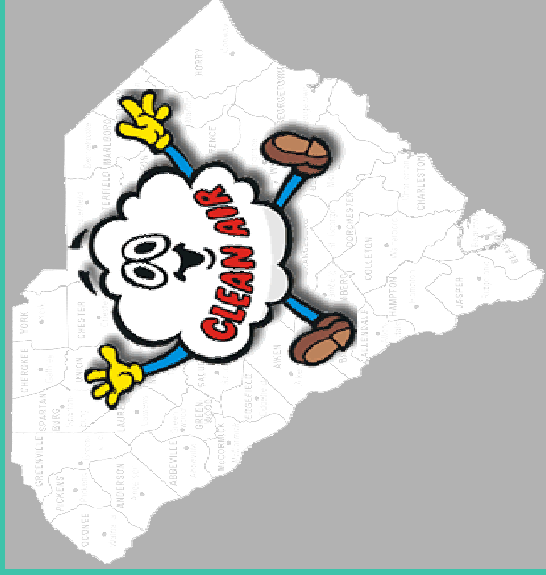
The competition can be:

- Class –vs- class
- School –vs- school in the same state or city
- School – vs- school in another state or city
- Department –vs- department

*You can have more than two teams in a competition but only one competition at a time.

OZONE ACTION CLASSES

South Carolina



Spare the Air

The Ozone Pollution Solution

What is an Ozone Action Class?

A collaborative, educational program that increases the communities awareness of air quality in South Carolina through the efforts of local schools.

The program focuses on finding solutions to ground level ozone pollution and also includes awareness information for reducing other types of air pollution.

Ozone Action Class is for:

- **Individual classrooms**
- **After school programs**
- **Girl and Boy Scout clubs**
- **School service learning projects**
- **Summer school programs**
- **Any group concerned about air quality in South Carolina and is ready to take action!**

Ozone Action Class promotes student learning by:

- Improving their problem solving skills as they provide pollution solutions
- Developing their interest in core subject areas learning through the environment
- Providing them opportunities to become involved in community outreach
- Encouraging them to become responsible stewards of the environment

B²@School

Breathe Better Air

Goal→to find solutions to reduce air pollution around the school by reducing vehicle emissions.



- Improvement of the dismissal procedure
- Implementing a no idling policy for buses and cars
- Participation in a faculty and staff carpool competition
- Promoting community awareness
- Participation in existing air pollution reduction programs

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